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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/386,847	08/31/1999	SHIGEKI WATANABE	837.1209/JDH	1867

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EXAMINER
MOONEY, MICHAEL P

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 11/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/386,847	WATANABE, SHIGEKI	
	Examiner	Art Unit	
	Michael P. Mooney	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) *27-33* is/are withdrawn from consideration.

5)☒ Claim(s) *1-13* is/are allowed.

6)☒ Claim(s) *14-18,21-26 and 34* is/are rejected.

7)☒ Claim(s) *19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Applicant's election without traverse of claims 1-26, 34 in Paper No. 5 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 14, 15, 18, 21 are rejected under 35 U.S.C. 102e as being anticipated by Kurokawa et al. (6122419).

Kurokawa et al. teaches first and second optical fiber networks each adapted to wavelength division multiplexing (fig. 51; fig. 44); and

a converter connected between said first and second optical fiber networks, said converter converting signal light into converted signal light by nonlinear optical effect based on said signal light and pump light (figs. 44, 51; col. 9 lines 50-65; col. 10, lines

55-65; col. 36 lines 9-14; col. 4, lines 10-15, 60-64; col. 17 lines 52-57; col. 31, line 54 to col. 32, line 4; col. 32, lines 46-51; col. 45, lines 29-48). Thus claim 14 is met.

Claims 15, 18 are also taught at the aforementioned Kurokawa et al. references. Thus claims 15, 18 are met.

Claim 21 is also taught at the aforementioned Kurokawa et al. references, see, particularly fig. 44/fiig. 51. Thus claim 21 is met.

Claim 34 rejected under 35 U.S.C. 102e as being anticipated by Bergano (6411413).

Bergano teaches the device of claim 34 at col. 3, line 57 to col. 4 line 4 and col. 10 lines 36-46. Thus claim 34 is met.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 16-17, 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa et al. (6122419).

Kurokawa et al. teaches first and second optical fiber networks each adapted to wavelength division multiplexing (fig. 51; fig. 44); and

a converter connected between said first and second optical fiber networks, said converter converting signal light into converted signal light by nonlinear optical effect based on said signal light and pump light (figs. 44, 51; col. 9 lines 50-65; col. 10, lines 55-65; col. 36 lines 9-14; col. 4, lines 10-15, 60-64; col. 17 lines 52-57; col. 31, line 54 to col. 32, line 4; col. 32, lines 46-51; col. 45, lines 29-48).

Although Kurokawa et al. does not expressly use the phrase "four wave mixing", four wave mixing is a well known optical phenomenon in which two or more signals interact due to a nonlinear medium in which the signals are mixed to generate conjugate signal frequencies as a function of input signal frequencies. This is clearly taught in Kurokawa et al. at col. 9 lines 50-61. Thus claims 16 and 17 are rejected.

Claims 22-26 illustrate a symmetric dispersion compensation system. Kurokawa et al. figure 44 and/or figure 51 illustrates a symmetric dispersion compensation system. Although Kurokawa et al. does not expressly state that the repeaters/converters are equidistant, this is obvious because it is NWK to have equal spacing between repeatersconverters in such systems. Thus claims 22-26 are rejected.

Allowable Subject Matter

Claims 1-13 are allowed.

The prior art, either alone or in combination, does not disclose or render obvious a device comprising: an optical circulator having first, second, and third ports; a polarization beam splitter having fourth, fifth and sixth ports, said fourth port being connected to said second port; a polarization maintaining fiber having first and second ends. and having a polarization mode to be maintained between said first and second ends, said fifth end being optically connected to said fifth port so that said first polarization plane is adapted to said polarization mode, said second end being optically connected to said sixth port so that said second polarization plane is adapted to said polarization mode in combination with the rest of claim 1.

The prior art, either alone or in combination, does not disclose or render obvious a device comprising: a polarization beam splitter having first, second and third ports, said first port being supplied with signal light including first and second polarization components respectively having first and second polarization planes orthogonal to each other, and with pump light said first and second ports being coupled by said first polarization plane, said first and third ports being coupled by said second polarization plane; and

a polarization maintaining fiber having first and second ends. and having a polarization mode to be maintained between said first and second ends, said first end being optically connected to said second port so that said first polarization plane is adapted to said polarization mode, said second end being optically connected to said

third port so that said second polarization plane is adapted to said polarization mode in combination with the rest of claim 11.

Claims 19, 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 703-308-6125. The examiner can normally be reached during weekdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703-308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956. An alternative useful number for status inquiries is 703-306-3329.

Michael P. Mooney
Examiner
Art Unit 2877

Frank G. Font
Supervisory Patent Examiner
Art Unit 2877

FGF/mpm
11/17/02

Recent Statutory Changes to 35 U.S.C. § 102(e)

On November 2, 2002, President Bush signed the 21st Century Department of Justice Appropriations Authorization Act (H.R. 2215) (Pub. L. 107-273, 116 Stat. 1758 (2002)), which further amended 35 U.S.C. § 102(e), as revised by the American Inventors Protection Act of 1999 (AIPA) (Pub. L. 106-113, 113 Stat. 1501 (1999)). The revised provisions in 35 U.S.C. § 102(e) are completely retroactive and effective immediately for all applications being examined or patents being reexamined. Until all of the Office's automated systems are updated to reflect the revised statute, citation to the revised statute in Office actions is provided by this attachment. This attachment also substitutes for any citation of the text of 35 U.S.C. § 102(e), if made, in the attached Office action.

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action:

> **A person shall be entitled to a patent unless –**
>
> **(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.**

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 prior to the amendment by the AIPA that forms the basis for the rejections under this section made in the attached Office action:

> **A person shall be entitled to a patent unless –**
>
> **(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.**

For more information on revised 35 U.S.C. § 102(e) visit the USPTO website at www.uspto.gov or call the Office of Patent Legal Administration at (703) 305-1622.